

OXYGEN

AND ITS

APPLICATIONS TO THERAPEUTICS.

BY

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“Oxygen and its Applications to Therapeutics.”

By Dr. G. MONIN,

Member of the faculty of Medicine of Paris, chief Editor of the “Journal of Practical Medicine,” etc., etc.

HYGIENIC and medical applications of oxygen have a great future before them, now that Messrs. Brin have found a practical means of producing, at a low cost, and in a state of absolute purity, this gas, which Lavoisier has with reason called “the vivifying spirit, par excellence.”

Great scope for the use of Oxygen.

For a long time past the physiological and therapeutic effects of oxygen have been well known, but the application of this gas to medicine has been impracticable on account of the cost of production, and the difficulties which medical men have had in procuring it.

Hitherto restricted by excessive cost of production.

Oxygen inhalations have the power of developing the respiratory functions, and increasing the amplitude of the thorax. While they enlarge the pulmonary phenomenon of the hematose, they also act as a tonic on, and regulate the working of, the cardiac muscles, thus stimulating and quickening the circulation, the important function from which we derive heat and life.

Effect of inhaled oxygen on the system.

Oxygen also increases the richness of the red corpuscles of the blood, in which it becomes incorporated, somewhat in the same way as in the platinum sponge. Under this influence the nutritive functions are increased and excited; the appetite is also sharpened, while the unconsumed residuum in the system, such as sugar, fat, uric and urates, are entirely carried off.

Giving increased richness of blood. Increase of the nutritive functions.

Oxygen can be inhaled for several hours at a time in enormous doses with impunity, provided that the gas be not compressed, and that it be administered at ordinary atmospheric pressure. In pulmonary phthisis, at every stage, inhalations of oxygen render the most signal services. The breathing under their influence becomes easy; the strength of the invalid is increased. In his work on Pneumotherapeutics, Demarquay considers this means as one of the safest medicinal agents in the treatment of this affection. The curative action is still more manifest in bronchitis with emphyzema (Read), in asthma; in spasmodic coughs, such as whooping-cough, &c.

Oxygen can readily be inhaled. Its great efficacy in consumption cases.

Also in bronchitis and whooping-cough.

Value for resuscitation in cases of submersion, "choke-damp," and the administration of anæsthetics.

If medical men always had oxygen at their disposal, it is probable we should not see so many people succumb to the effects of submersion, or asphyxiated by carbonic-acid gas. In cases where people are compelled to breathe deleterious gases, and in the administration of anæsthetics, oxygen ought always to be within reach of the operator, affording him a powerful therapeutic aid in cases of necessity.

Application to anemia, scrofula and syphilis.

Oxygen inhalations have also been employed with great success by the Drs. Demarquay and Hayem in cases of anemia, scrofula, and advanced syphilis. In diabetes its combustible action has been utilized by Durand-Fardel, Béranger-Feraud, Thierry-Mieg, &c. Dr. E. Monin, in his prize-essay read before the Society of Medicine at Antwerp, stated: "In inhaling 10 to 20 litres of oxygen every morning, the sufferer of diabetes will add to his treatment an incontestably useful agent, especially if his lungs have any tendency to become congested." This means has been more particularly employed where the subject of diabetes has not been able to get out into the open air, for it enables him to combat the fatal atmosphere of towns and of the sick room, the most mortal enemy of the sufferer from diabetes.

Effect on diabetic patients.

Dr. Campardon, in a Paper on therapeutics, read before the Society of Practical Medicine, relates equally interesting accounts of the applications of oxygen-gas.

Influence during pregnancy highly satisfactory.

Under the influence of oxygen inhalations in doses of 6 litres a day, the digestive troubles which generally attend the commencement of pregnancy, frequent vomiting, loss of appetite, neuralgias, disappear very soon.

Eight authenticated cases.

The observations of Mayer and Maunoir, of Pinard and of Dr. Doreau, eight in all (the three last being cases of incessant vomiting), leave no doubt whatever of the efficacy of this agent.

Period of inhalations.

A dilution with atmospheric air may be employed.

According to Quinquod, the inhalation ought to last at least half an hour; a dilution may be also employed. A dilution of one-third oxygen will produce as much effect, provided the length of the inhalation be increased proportionately in inverse ratio. A sedative effect is thus produced; with phthisical subjects neither pulmonary congestion, nor hemoptysis are to be feared.

According to Kirnberger, oxygen inhalations restrain that morbid thirst which one observes in leucœmia and pseudo leucœmia.

Application during epidemics of Cholera at Toulon and Marseilles.

During the cholera at Toulon and Marseilles last year, the most favourable results were obtained with oxygen. By its means the hospital wards were disinfected, and numerous patients saved.

It was therefore with good reason that Demarquay proposed that

oxygen should be used to produce a pure atmosphere in all hospital establishments, which can be done by this means far more efficiently than by any of the systems of ventilation; for the air of towns is vitiated, more especially in those populous quarters where hospitals are established. It is true that when Demarquay wrote, the preparation of oxygen at a moderate cost was still to be attained; he had proposed oxygen baths, for serious ulcers, obstinate eczema, and phagedenic cancers. Let us remember also the success obtained by Langier, who treated senile gangrene and local asphyxia congestion by prolonged immersion of the parts affected in this vivifying gas par excellence.

Demarquay's
proposal to use
Oxygen baths
for ulcers and
eczema.

Messrs. Brin not only supply chemically pure oxygen for the various applications above-mentioned. They have also a liquid preparation destined to have a great future, if we may judge by the valuable results already obtained.

Oxygenated
water.

Dr. Dujardin-Beaumetz has made an interesting communication to the Therapeutic Society on water charged with oxygen, and its uses in therapeutics. Oxygen is now obtained at a comparatively trifling cost, and forced, under pressure, into water contained in ordinary Seltzer water syphons. Syphons containing tartaric, lemonade, wine, &c., can be charged with oxygen in the same way; water charged with ozone can also be obtained. The ozone is produced by passing the oxygen over electric sparks, emitted by an electro-dynamic machine.

“I use,” says Mr. Dujardin, “in my establishment nothing but oxygenated water, and I give it for the same reasons for which Seltzer water is given. I mix it also with wine and with milk.”

No inconvenience has ever been caused by the use of oxygenated water. It sometimes happens that patients exhibit distaste for it as it is flat, and has none of the sharpness peculiar to water charged with carbonic acid.

Dr. Ozanam recognises in this water charged with oxygen re-constituting properties analogous to those of oxygen itself. He has always employed it with excellent results in dyspnea, asphyxia congestion, gout, diabetes, scrofula, tumours, &c.

Oxygenated
water equal in
value to
oxygen gas.

In 1880 Regnard satisfied himself that it checked fermentations, killed the thrush (*l'algue du muguet*) (Damaschino), and made an excellent table drink, giving a pleasant taste to the most inferior wines. Dr. Ern. Labbé, from whom I borrow these details (“Dictionnaire des sciences médicales de Dechambre”), in view of all the facts testified to by Odier, Ozanam, and also by Dr. Maumené and the Professor Damaschino, expresses his regret that the use of oxygenated water is not more wide-spread. “It constitutes

a great therapeutic resource," says the learned doctor of the hospitals, "and medical men are to blame for not making experiments with it."

Great value in cases of diphtheria.

In addition, as a surgical aid, its use has been advised by eminent surgeons in septic wounds, ulcers of a bad nature, and more especially in diphtheria, that frightful infantile malady in presence of which therapeutics are so often powerless.

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